

Specification Amendments:

[0002] The present invention is directed to a patch panel and, more particularly, a high density patch panel utilizing six, eight-position faceplates for housing a total of 48 ports in one EIA/TIA rack unit.

[0003] 24-port and 32-port patch panels having frames that mount to any standardized standard 19-inch network rack and utilize one rack space are known in the telecommunications industry. However, prior art devices, such as the connector mounting receptacles disclosed in U.S. Patent No. 5,672,074, require the connector to be rotated into engagement with the wall-plate faceplate and, thus, require a significant amount of space between connector rows.

[0004] Moreover, 48-port patch panels having frames that mount to any standardized standard EIA/TIA 19-inch network rack and utilize one rack space are known in the telecommunications industry. However, prior art devices, such as Hubbell Premise Wiring's Hubbell's Premise Wiring UDX Series Jack Panels, mount the connectors jacks directly into the rear of the patch panel frame, and thus, do not have a faceplate mounted into the frame. Also, the Hubbell jack panels utilize a staggered frame design to facilitate installation and removal of the keystone connectors. In fact, if two keystone connectors were vertically aligned within the patch panel, the jacks would occupy more than one rack unit (1.72 inches high).

[0005] It would be desirable to provide [[a]] an improved patch panel having a total of 48 ports in one EIA/TIA rack unit.

[0006] It would also be desirable to provide [[a]] an improved patch panel having two rows of modular jacks mounted therein, with at least two modular jacks vertically aligned within the patch panel.

[0007] It would further be desirable to provide [[a]] an improved patch panel having a plurality of modular jacks capable of being mounted straight into the rear of a faceplate to minimize the required distance between the two rows of modular jacks.

[0008] A patch panel is disclosed. The patch panel includes a frame, a faceplate mountable into a rear side of the frame, and at least one modular jack mountable into a rear side of the faceplate. The frame has a plurality of faceplate openings, and the faceplate has a plurality of modules mounting openings. Each module mounting opening has at least one modular jack retention latch.

[0009] Preferably, the frame has a top flange including a plurality of first notches apertures and a bottom flange including a plurality of second notches apertures. Moreover, the frame includes indicia centered above each modular jack position.

[0010] Preferably, the frame has receives six faceplates openings, and has a center bar extending horizontally from a first end thereof to a second end thereof. Moreover, the frame has a plurality of first mounting apertures at the first end and a plurality of second mounting apertures at the second end.

[0012] Preferably, each faceplate has four modules mounting openings and eight modular jack openings. Each module includes mounting opening accommodates two modular jacks, and includes two modular jack retention latches and three modular jack stops.

[0013] Preferably, the patch panel includes forty-eight modular jacks in one EIA/TIA rack unit, with at least two modular jacks vertically aligned within the patch panel.

[0030] The illustrated embodiments of the invention are directed to a high density patch panel utilizing six, eight-position faceplates for a total of 48 ports in one rack unit. One rack unit is 1.75 inches high under the EIA/TIA standard.

[0033] FIGS. 2-4 show the frame 22. Although the frame 22 is flat, it is likewise contemplated that the frame 22 may be angled, as disclosed in U.S. Patent Application Serial No. 09/916,923, the disclosure of which is incorporated by reference. The frame 22 has a center bar 28 that runs the horizontal length of the frame 22 and adds strength to the frame 22. The center bar 28 divides each faceplate opening 38 into two separate openings. As best seen in FIG. 2, the frame 22 has a top flange 30 including a plurality of notches apertures, such as notch aperture 32. Similarly, as best seen in FIG. 4, the frame 22 has a bottom flange 34 including a plurality of notches apertures, such as notch aperture 36. The notches apertures 32, 36 allow the faceplate 24 to be snap-mounted into the rear side of the frame 22.

[0034] As best seen in FIGS. 2 and 3, the frame 22 has a plurality of faceplate openings, such as faceplate opening 38, for receiving a plurality of modular jacks, such as modular jack 26 shown in FIGS. 9-11. Indicia 40, such as numbers 1-48, are silk-screened and centered above each module position opening for identifying each individual port on the frame 22. The frame 22 also includes a plurality of mounting apertures, such as mounting aperture 42, for securing the frame 22 to any standardized standard EIA/TIA 19-inch rack.

[0035] FIGS. 5-8 show the faceplate 24. As best seen in FIG. 5, the faceplate 24 has a top flange 44 including two faceplate retention latches 46, 48 and two release arms 47, 49. Similarly, as best seen in FIG. 8, the faceplate has a bottom flange 50 including two faceplate retention latches 52, 54. The retention latches 46, 48, 52, 54 allow the faceplate 24 to be snap-mounted into the rear side of the frame 22, as shown in FIG. 12, and the release arms 47, 49 allow the faceplate to be removed from the frame 22.

[0036] As best seen in FIGS. 5 and 6, the faceplate 24 has four modules mounting openings 56, 58, 60, 62, and each module only mounting opening accommodates only two modular jacks to increase the strength of the faceplate 24. Each module mounting opening includes two modular jack retention latches 64, 66, which allow the modular jacks to be mounted straight into the rear of the faceplate 24 and flush with the frame 22. The modular jack retention latches 64, 66 maximize the patch panel density because the straight-in insertion of the modular jacks minimizes the required distance between two vertically stacked modular jacks. Each module mounting opening also includes three modular jack stops 68, 70, 72, which, in conjunction with top flange 44, secure two modular jacks therein.

[0038] The disclosed invention provides a high density patch panel having a plurality of faceplates mounted therein, each faceplate having modular jack retention latches that allow modular jacks to be mounted straight into the rear of the faceplate and flush with the frame. It should be noted that the above-described and illustrated embodiments and preferred embodiments of the invention are not an exhaustive listing of the forms such a patch panel in accordance with the invention might take; rather, they serve as exemplary and illustrative of embodiments of the invention as presently understood. By way of example, and without limitation, a patch panel having a faceplate including modular jack

retention latches on the side walls thereof is contemplated to be within the scope of the invention. Many other forms of the invention are believed to exist.